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BELIEVE ME, YOU ARE (NOT) THAT BAD

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Believe me, you are (not) that bad

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Abstract

This paper studies the effect of incentive schemes incorporating status classes on workers' performance. I focus on performance comparisons between similarly skilled workers that belong to different status classes. A theoretical framework predicts that, under certain conditions, low ability workers attain high performance when they are assigned to a high rather than a low status class, and that high ability workers achieve high performance irrespective of the received status. These predictions are tested in a laboratory setting, where subjects are randomly assigned to a high status or a low status condition and constant performance feedback is provided. The experimental data support both predictions: low ability subjects assigned to the high status condition outperform their low status counterparts by 0.53 standard deviations in a cognitively challenging task, and high ability subjects display high performance outcomes in both status classes. Moreover, I explore the subjects' beliefs about performance as a mechanism to explain these results. I find that low ability subjects assigned to the high status exhibit performance targets that were as high as those elicited by high ability participants. This suggests that these workers used status to believe that they were good performers, and performed accordingly.

JEL Classification : D03, C91, D84, M54, Z13

Keywords: Performance, Status, Beliefs, Experiments, Cognition.

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1 Introduction

The taste for status is inherent in human nature.¹ High social status is desirable from a neurobiological perspective, as it activates the rewards-related neural circuitry (Dohmen et al., 2011), as well as from an evolutionary standpoint, since it increases the likelihood of survival and reproduction in animal species.² This hard-wired quest for high status influences economic decision-making as documented in empirical, as well as in theoretical work (Ray and Robson, 2012; Hopkins and Kornienko, 2009; Fliessbach et al., 2007; Ball et al., 2001; Neumark and Postlewaite, 1998; Oswald, 1997; Robson, 1992).

The framework considered in this paper is an agency setting, in which the principal is aware of the agent’s taste for status and diverts this concern to pursue his own benefit. Particularly, the principal attains high levels of effort provision by offering a labor contract that complements standard monetary incentives with a status class or a relative standing as suggested by Besley and Ghatak (2008), Moldovanu et al. (2007), and Auriol and Renault (2008).³ There is empirical literature supporting the effectiveness of this practice in settings in which high status is treated as the provision of a non-financial reward (Bradler et al., 2016; Bareket-Bojmel, 2014; Neckermann et al., 2014; Ashraf et al., 2014; Kosfeld and Neckermann, 2011) or a high standing on a relative performance ranking (Charness et al., 2014; Kuhn and Tymula, 2012; Azmat and Iriberry, 2010).

While the effect of these status incentives on the agents’ performance has been extensively investigated, most studies focus on performance measures when the allocation status is anticipated by the worker and depends on her performance. However, relatively little attention has been given to the effect of an unanticipated provision of status incentives on subsequent performance.⁴ Understanding such effect is critical to comprehend how these devices affect the motivation of individuals endowed with certain abilities on a productive task. In different words, studying status incentives in an environment in which workers do not expect them and do not deserve them, allows managers to evaluate how these devices alter the performance of workers that belong to different points of the skills distribution.

The focus of the present paper is the effect of status incentives on workers’ performance. I devote attention to the performance comparison of individuals with similar abilities on a

¹In this paper social status is defined as the position in a ranked ordered structure, determined by a shared standard of value of the involved actors (Ridgeway and Walker, 1995).

²Status seeking behaviors are documented in diverse non-human animals such as apes (de Waal, 2007), bonobos (Hohmann and Fruth, 2000), hens (Schjelderup-Ebbe, 1935) and ants (Regnier and Wilson, 1971).

³An example of such contracts are the employee recognition programs, such as “Employee of the month” award used by McDonald’s, where on top of his monetary compensation the worker receives recognition when his performance is outstanding.

⁴Some exceptions include Bradler et al. (2016) who study in a field experiment the effect of an unanticipated reward on performance in a data-entry task and Neckermann et al. (2014), who in a quasi-experimental setting find that awards boost subsequent performance outcomes in a call-center.

task but belonging to different status classes. To that end, I focus on an allocation in which status class is randomly assigned. Such an allocation facilitates the intended comparison as workers across the whole spectrum of abilities have identical chance to belong to a status class. My hypothesis is that status influences agents' beliefs about their performance on the task, which can alter their actual performance when incorporated in their preferences as in Köszegi (2006), Compte and Postlewaite (2004), and Caplin and Leahy (2001).

I begin with a theoretical framework, presented in section 2. The model builds upon a standard agency model in which the agent faces a pay-for-performance incentive scheme. In the benchmark scenario, the agent holds standard preferences over effort choices and knows her abilities on the productive task. Thus, status, a random binary signal provided by nature before reaching the production stage, does not alter effort exertion. The prediction of this benchmark is that high ability individuals should, irrespective of their status, exhibit higher performance outcomes as compared to low ability individuals.

I depart from the benchmark by introducing two concepts from behavioral economics: i) anticipatory utility (Caplin and Leahy, 2001), which introduces the possibility that the representative agent experiences utility caused by the feelings derived from thinking about her future payoff, and ii) information distortion (Benabou and Tirole, 2002), which is the idea that the agent could, at a cost, forget relevant information. This scenario provides an environment in which agents could engage in strategic self-deception, a situation in which an individual could forget her true type to derive utility gains from believing, whenever it is convenient, in the realized status signal. The prediction of this scenario is that agents that have high abilities or, alternatively, a high status class exert high effort levels.

I investigate the predictions of the model in a controlled laboratory setting. Section 3 provides a description of the experimental design, which is based on Eckel and Ball (1996)'s protocol. Subjects are randomly assigned to one of two conditions: A high status condition and a low status condition. Moreover, a cognitively challenging task, the Progressive Ravens Matrices test, is implemented both before and after the status assignment took place.⁵ The first implementation was used to classify subjects into high types or low types according to their cognitive abilities, and the second one measured cognitive performance after the status assignment and when monetary incentives are at stake. Private feedback about personal performance is constantly provided in each stage of the experiment. This design enables the measurement of cognitive performance before and after the status class assignment.

In section 4, I discuss the results of the experiment. The primary finding is that subjects classified as having low abilities and assigned to the high status condition outperformed their counterparts in the low status condition by 0.53 standard deviations. Moreover, this differ-

⁵The Progressive Ravens Matrices test, is a non-verbal task typically used in the literature of psychology to measure fluid intelligence, or the ability of a subject to perform novel tasks.

ence is large enough to even out the average performance outcome of low ability subjects with that of high ability ones. This result is consistent with the self-deception scenario, in which in spite of having information about their abilities in the task, status is used strategically by the low type agents to derive utility gains, which in turn raises performance. A heterogenous treatment effects analysis shows that the lower are the skills of a participant, the higher is her subsequent performance when assigned to the high status.

In the spirit of a robustness test, an additional experiment is conducted. This experiment’s design presents one variation with respect to the original one: status classes were awarded on the basis of cognitive abilities. One would expect that if low ability subjects achieved high performance by means of the high status, then under this new system they will exhibit lower performance as compared to high types. Indeed, the data show that high ability subjects outperform by a significant margin low ability subjects. This constitutes further evidence that the high performance achieved by low types in the first experiment is due to the assignment to the high status.

During the original experiment, subjects were asked to state their production targets or goals before and while completing the Raven’s matrices. In section 5, I use this data to analyze whether status had an effect on these targets. The data display that low ability subjects assigned to the high status class sat higher targets as compared to their counterparts in the low status. What is more, even though their abilities in the task were low and this knowledge was reinforced by the constant feedback about their performance, their target levels were comparable to those classified as having high abilities on the task. In other words, low ability subjects believed that they were not that bad when they were assigned to the high status. This is once again in line with the self-deception scenario, in that low types use the high status signal strategically to convince themselves that they are skilled.

This paper contributes to several strands of literature. First, it relates to the empirical literature that studies the effect of non-financial rewards on performance. This study supports the findings of Bareket-Bojmel (2014), Ashraf et al. (2014), and Kosfeld and Neckermann (2011) as it shows that a non-financial status reward leads to improvements in the performance outcomes. However, in stark difference with these papers, the non-financial reward in this study is unanticipated by the agents and is given to them at the pre-production stage. Thus, the results of this study show that these incentives are effective in boosting workers performance even when they are provided at the pre-production stage. Furthermore, I complement the results of Bradler et al. (2016), and Neckermann et al. (2014) as I show in a controlled laboratory setting that the provision of a non-financial reward with a short recognition ceremony raises the performance outcomes of unskilled individuals in a cognitively challenging task.

Second, it relates and contributes to the literature of self-image in economics. The

theoretical model considers a game of self-deception similar to that presented in Benabou and Tirole (2002). However, in my framework the representative agent holds standard time preferences and it is through the inclusion of anticipatory utility in her preferences that there is a strategic interaction between the agent’s selves (Benabou, 2015; Caplin and Leahy, 2001). Furthermore, another difference is that in my model the agent receives, in addition to an informative signal about her type, a random binary status signal provided by nature, which if favourable can be used strategically to replace an eventual unfavourable informative signal about her type and in this way maintain high beliefs about her future performance.

Also, the experimental results lend support to the empirical finding that individuals incorporate differently favorable and unfavorable news about themselves in their belief system (Eil and Rao, 2011; Mobius et al., 2014). In my experiment, low ability subjects internalize the assignment to the high status; they exhibit higher average performance beliefs as compared to their counterparts that received the low status. However, high ability subjects do not internalize the assignment to the low status; high ability subjects belonging to both status classes exhibit high performance beliefs. A prominent difference with respect to the existing literature is that my experimental design measures beliefs about absolute performance rather than beliefs about relative performance. The advantage of this measurement is that it illustrates in a straightforward manner the influence of status on the subject’s confidence to execute the task.

Fourth, this research adds to the literature that studies the effect of social status on economic decision making in experimental settings. The experiment presented in this paper is based on the design of Eckel and Ball (1996) and is also implemented by Eckel and Wilson (1998), Ball et al. (2001), Kumru and Vesterlund (2010), and Eckel et al. (2010). As in those papers, a status class consists of a non-monetary item, a medal, given to half of the subjects. However, the design of this study differs from these studies in that a cognitively challenging task is employed before and after the provision of the status class. Hence, this experimental protocol aims to investigate the causal evaluation of the impact of the status assignment on cognitive performance.

Finally, the paper contributes to the literature of goal-setting in economics. Research on goal setting states that a challenging goal set by the principal can boost the agent’s performance (Wu et al., 2008; Corgnet et al., 2015). Besides, theoretical models have shown that personal goals could address self-control problems that stem from present-biased preferences (Koch and Nafziger, 2009, 2011), and empirical evidence has shown that binding personal goals could be motivating and lead to high performance levels as compared to contracts that carry comparable monetary rewards (Dalton et al., 2015; Goerg and Kube, 2012). My contribution to this literature is twofold, first the results of this experiment

show that the assignment to different status classes has an effect on production targets. Specifically, the assignment to the high status class allows low ability subjects to set high production targets or goals. Second, these high goals translate into high performance.

The most closely related studies are Mobius et al. (2014) and Butler (2014). Mobius et al. (2014)'s design is aimed at investigating the evolution of subjects' beliefs about relative performance when they are exposed to relative performance feedback with a known random component. They find that in deep contrast to the belief formation according to Bayes rule, subjects exhibit asymmetry and conservativeness when updating their beliefs. However, my paper differs in two respects. First, as mentioned above this paper elicits the beliefs of subjects regarding their absolute performance in a task. Second, my interest lies in performance changes caused by a unique and unanticipated status allocation, while they focus on a environment in which there is a constant interaction between the stand on a ranking and performance.

The paper by Butler (2014) studies how unequal performance pay in a task affects beliefs about performance. He finds in a set of three experiments that the random assignment to a treatment that yields higher performance pay bolsters confidence relative to the performance of others, but these higher beliefs do not affect performance outcomes. The experiment presented in this paper is different in the following aspects: 1) performance pay is equal across conditions, 2) the source of inequality is non-financial and bears no monetary differences, 3) I perform a measurement of initial abilities in the task to assess performance differences for participants with similar abilities but assigned to different status classes, and 4) the accurate elicitation of beliefs was not incentivized. Additionally, in contrast to Butler (2014), the data of this research suggest that the higher beliefs about performance lead to higher performance.

2 The model

In this section I develop a theoretical framework for the analysis of the effect of status on worker's performance. In the model, status is assumed to be a random binary signal provided by nature at the pre-production stage. Under certain conditions, the agent is able to use these spurious signals to boost utility which in turn boosts her effort provision. I use elements of Benabou and Tirole (2002)'s and Benabou (2015)'s game of self-deception.

The benchmark scenario

Consider a representative risk-neutral agent with a time horizon of three periods, $t = 0, 1, 2$. At date 1 she chooses an effort level $e \geq 0$ to be exerted in a productive task. This decision

carries out immediate disutility, represented by $c(e)$, a strictly increasing, quasi-convex, and twice continuously differentiable function.

Assumption 1: $c_e(e) > 0$, and $c_{ee}(e) \geq 0$.

Moreover, she faces a pay-for-performance incentive scheme that pays, at date 2, one monetary unit per produced output. I posit that effort is transformed into output through the production function $b(e, \theta_i)$, where $\theta_i \in \{\theta_H, \theta_L\}$ is a parameter that captures whether the agent is of a high type, θ_H , or whether she is of a low type, θ_L . For simplicity, I assume that the production function $b(e, \theta_i)$ is deterministic and has a functional form that depicts a complementarity between abilities and effort.

Assumption 2: $b(e, \theta_i) = \theta_i e$.

Furthermore, the agent's decision follows a move by nature, who provides the agent with a pair (θ_i, σ_j) at $t = 0$, where the second element of this tuple represents a random status signal $\sigma_j \in \{\sigma_H, \sigma_L\}$, with $\sigma_H > \sigma_L$. Following Scharfstein and Stein (1990), I assume that the agent is able to differentiate informative, θ_i , from random, σ_j , signals. Thus, she is informed about her abilities on the task before she makes a decision about her provision of effort.

The agent's utility at $t = 0$ is represented by

$$U_0(e) = \delta^2 \theta_i e - \delta c(e), \quad (1)$$

where, $0 < \delta < 1$ represents an inter-temporal discount factor. The rational agent chooses an effort level that satisfies the first order condition

$$\delta^2 \theta_i - \delta c_e(e^*) = 0. \quad (2)$$

Where e^* represents the optimal effort level. Note from the expression in (2) that high type agents will provide higher effort levels than low type agents. Also note that the rational agent disregards the random signal, σ_i , as it carries no economic value. This benchmark scenario illustrates a situation in which the status signals provided at the pre-production level do not influence the agent's provision of effort.

A game of self-deception

In this subsection I introduce two variations with respect to the benchmark scenario. First, the agent experiences anticipatory utility (Caplin and Leahy, 2001). In other words, she derives utility gains at $t = 1$ caused by the emotions evoked from thinking about her future

payoff level.¹ I model these gains by introducing the component, $E_1(U_2)$, in the agent's preferences.

The second variation concerns the agent's information about her abilities, and considers a multiple selves framework. I assume that the agent at $t = 0$ or Self 0 is able to send an intrapersonal signal, $\tilde{\theta}_i \in \{\tilde{\theta}_H, \tilde{\theta}_L\}$, to Self 1. This signal may represent the frequency of true state of nature i or the frequency of the received status signal j . The intrapersonal signal can be thought of the outcome of a cognitive process in which Self 0 distorts the available information about her abilities by forgetting relevant information, θ_i , or by rationalizing false information, σ_j .

To build intuition about the incentive environment that these two variations generate, consider the scenario in which the agent received the pair (θ_L, σ_H) . In such a situation Self 0 could either send an intrapersonal signal that reflects the state of nature $\tilde{\theta}_L$ or distort information by sending an intrapersonal signal of the same frequency of the received random signal $\tilde{\theta}_H$. Given that she works under a pay-for-performance incentive scheme where higher performance in the task leads to higher payments, then the anticipatory utility $E_1(U_2)$ is higher when the agent believes that she is of a high type. Thus, Self 0 is better off distorting information and sending $\tilde{\theta}_H$. In contrast, in a scenario in which the agent receives (θ_H, σ_L) , information distortion is not desirable, and the agent is better off sending $\tilde{\theta}_H$.

These variations provide the environment for an intra-personal game of deception in which Self 0, whenever feasible, sends favorable signals, $\tilde{\theta}_H$, to convince Self 1 that she is of a high type even when this may not be true. However, Self 1 is aware of this motivation and responds by discounting these signals through an asymmetric bayesian reaction. Specifically, when Self 1 receives a favorable signal she knows that with some probability $0 \leq \lambda \leq 1$ the state of nature is in fact θ_L and that with probability $1 - \lambda$ the state of nature is θ_H . Figure 1 illustrates the bayesian updating process.

Given the strategic interaction between Self 0 and Self 1, the probability that a signal $\tilde{\theta}_H$ reflects that the agent is of a high type θ_H is given by

$$p \equiv Prob(\theta_H | \tilde{\theta}_H) = \frac{q}{q + (1 - q)\lambda} ,$$

where $0 < q < 1$ represents the agent's prior of the distribution of high types in the organization. Thus, the anticipatory utility component of Self 1 can be written as

$$E_1(U_2) = pe\theta_H + (1 - p)e\theta_L .$$

¹ Alternatively, the source of these utility gains can be the pride or ego that the agent derives from holding high self-image. Specifically, believing that she is diligent on the productive task (Koszegi and Rabin, 2006)

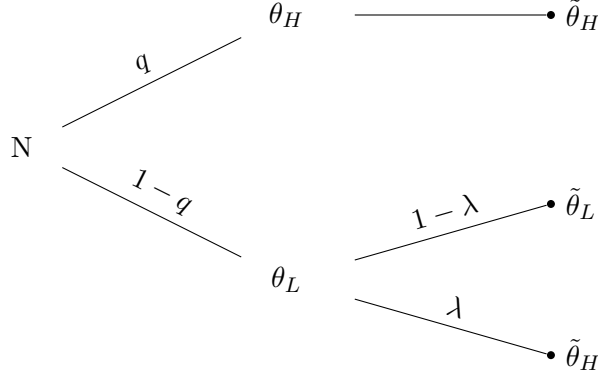


Figure 1: Self-1 Bayesian reaction to information signals $\tilde{\theta}_i$

To conclude the description of the agent's preferences under this scenario, I assume that distorting information carries out disutility. To keep things simple I represent these costs by an increasing and linear function of the degree of information distortion, λ .

Assumption 3: $m(\lambda) = m\lambda$.

This disutility can be interpreted as the cognitive depletion experienced by the agent from ignoring relevant information or rationalizing irrelevant information. All in all, the objective function of Self 0 is represented by

$$E(U_0(e, \lambda)) = \lambda U_D(e) + (1 - \lambda)U_T(e) - m\lambda, \quad (3)$$

where

$$U_T(e) = \delta^2 e \theta_i - \delta c(e) + s \delta e \theta_i,$$

captures the utility gains when the intra-personal signal reflects the true state of nature, and $s > 0$ is a parameter that weights the importance of anticipatory utility. Furthermore,

$$U_D(e) = \delta^2 e \theta_i - \delta c(e) + s \delta (p e \theta_H + (1 - p) e \theta_L),$$

is an expression that captures the utility gains when information about abilities is distorted. This objective function entails that the utility gains from information distortion are weighted by the degree in which the agent incurs in such practice.

The rational agent exerts an optimal effort level e^{**} which satisfies the following first order condition with respect to effort

$$\delta(\delta + (1 - \lambda)s)\theta_i + \delta s \lambda (p \theta_H + (1 - p)\theta_L) - \delta c_e(e^{**}) = 0. \quad (4)$$

This expression shows that when λ is taken as a constant, agents with higher abilities θ_i

exert higher effort levels. Also agents that give more weight to anticipatory utility, s , exert higher effort levels. Finally, higher levels of information distortion, λ , lead to higher effort levels for low types, but lower effort levels for high types.²

Although the previous analysis took the degree of information distortion as an exogenous parameter, the interest of this paper lies on situations in which the agent can choose the extent in which she engages in information distortion. Lemma 1 demonstrates that when such choice is available, the agent chooses to distort information when at least one of the elements of the information pair (θ_i, σ_i) is of high frequency. Moreover, this lemma shows that the agent never chooses to fully distort information, $\lambda < 1$.

Lemma 1: *The optimal degree of information distortion chosen by the agent is*

$$\lambda^{**} \in \begin{cases} \{0\} & \text{if } (\theta_L, \sigma_L), \\ (0, 1), & \text{if } \theta_i = \theta_H \text{ or } \sigma_i = \sigma_H \end{cases}$$

Proof. I begin with the case in which the agent holds the information tuple (θ_L, σ_L) . In this case there are no benefits from information distortion since $U_T(e) = U_D(e)$, and the rational agent sets $\lambda^{**} = 0$ to avoid incurring in losses in utility from $m(\lambda)$.

Next I focus on the case in which the agent holds a tuple (θ_i, σ_i) where either $\theta_i = \theta_H$ or $\sigma_i = \sigma_H$. Define $E_0(U(\lambda))$ to be the objective function, given by (3), evaluated at the optimum e^{**} , given by (4). The envelope theorem states that

$$\frac{\partial E(U(\lambda))}{\partial \lambda} = U_D(e^{**}) - U_T(e^{**}) + \lambda \delta s \frac{p}{\lambda} (\theta_H e^{**} - \theta_L e^{**}) - m. \quad (5)$$

Hence, λ has two effects on $E(U(\lambda))$: i) it increases utility by placing more weight on $U_D(e^{**})$, which at the same time yields a marginal benefit $\lambda \delta s \frac{p}{\lambda} (\theta_H e^{**} - \theta_L e^{**})$, and ii) decreases utility by placing less weight on $U_T(e^{**})$, and through the disutility derived from the marginal cost of signal distortion m .

The shape of the function $E_0(U(\lambda))$ is given by

$$\frac{\partial^2 E(U(\lambda))}{\partial \lambda^2} = -\delta s (e^{**} \theta_H - e^{**} \theta_L) \left(\frac{2q^2(1-q)\lambda + 1}{q + (1-q)\lambda} \right), \quad (6)$$

which is negative for all the parameters of the model. Therefore, for the scenario in which either θ_H or σ_H , the optimal probability of distortion λ^{**} lies in the interval $(0, 1)$.

²Implicit differentiation of (3) leads to $\frac{de^{**}}{d\lambda} = \frac{s(\theta_H - \theta_L) \frac{q^2}{(q+(1-q)\lambda)^2}}{c_{ee}(e^{**})} > 0$ if θ_L is the state of nature. Alternatively, implicit differentiation of (3) leads to $\frac{de^{**}}{d\lambda} = \frac{s(\theta_H - \theta_L) \frac{2(q-1)(\lambda-\lambda^2)(1-q)^2}{(q+(1-q)\lambda)^2}}{c_{ee}(e^{**})} < 0$ if θ_H is the state of nature.

□

The intuition underlying this result is as follows: If the agent holds a tuple (θ_L, σ_L) , information distortion brings no utility gains and engaging in such exercise is cognitively costly, hence it is optimal to set $\lambda = 0$. Moreover, if the agent holds an information tuple (θ_L, σ_H) , a positive degree of information distortion, $\lambda > 0$, is beneficial since she would experience some gains from anticipatory utility from believing that she is skilled even though she is not. Alternatively, agents holding a signal θ_H could benefit from a positive degree of information distortion, $\lambda > 0$, since they would incur in lower levels of effort disutility, as they induce beliefs that state that they are less skilled than they are. Finally, given the cognitive costs derived from information distortion, it is optimal that the probability of distortion attains the boundary $\lambda < 1$.

The equilibrium of the deception game played by the selves of the agent, is described in Proposition 1.

Proposition 1: *The equilibrium of the self-deception game is described by the Perfect Bayesian Nash equilibrium $(\lambda_{\tilde{\theta}_i}^{**}, e_{\tilde{\theta}_i}^{**}) \in [0, 1) \times (0, \infty)$ with*

$$e_{\tilde{\theta}_i}^{**} = \begin{cases} e_{\theta_H}^{**} & \text{if } \theta_i = \theta_H \text{ or } \sigma_i = \sigma_H, \\ e_{\tilde{\theta}_L}^{**} & \text{if } (\theta_L, \sigma_L), \end{cases}$$

where $e_{\theta_H}^{**} \geq e_{\tilde{\theta}_L}^{**}$ for $e_{\theta_H}^{**}$ satisfying (4), and

$$\lambda_{\tilde{\theta}_i}^{**} = \begin{cases} \lambda_{\theta_H}^{**} & \text{if } \theta_i = \theta_H \text{ or } \sigma_i = \sigma_H, \\ \lambda_{\tilde{\theta}_L}^{**} & \text{if } (\theta_L, \sigma_L), \end{cases}$$

such that $\lambda_{\theta_H}^{**} > \lambda_{\tilde{\theta}_L}^{**} = 0$.

Proof. I begin with the case in which the agent holds the tuple (θ_L, σ_L) . Her objective function is

$$E_0(U(e)) = \delta^2 e \theta_L - \delta c(e) + s \delta (e \theta_L).$$

The effort level that maximizes this objective function, $e_{\theta_L}^{**}$, satisfies the following first order condition

$$(\delta + s) \delta \theta_L - c_e(e_{\theta_L}^{**}) = 0. \quad (7)$$

Moreover, for this information tuple the agent chooses not to distort information, $\lambda_{\tilde{\theta}_L}^{**} = 0$, as stated in Lemma 1.

I proceed to describe the equilibrium for the case in which the agent holds the tuple (θ_i, σ_i) with θ_H and/or σ_H . The objective function in this case is described by (3). The effort level that maximizes this objective function, referred as from here onward $e_{\theta_H}^{**}$, satisfies the first order condition given by (4).

I next show that

$$e_{\theta_H}^{**} > e_{\theta_L}^{**}.$$

This inequality holds since

$$s\lambda(p\theta_H + (1-p)\theta_H) + (1-\lambda)s\theta_L > s\theta_L,$$

is satisfied in as much as in Lemma 1 the agent with θ_i and/or σ_i chooses $\lambda > 0$.

Finally, from Lemma 1 $\lambda_{\theta_L}^{**} = 0$ and $\lambda_{\theta_H}^{**} \in (0, 1)$ then $\lambda_{\sigma_H}^{**} > \lambda_{\sigma_L}^{**}$.

□

Proposition 1 depicts a situation in which the low types that received a high status signal, σ_H , exert higher effort levels as compared to their counterparts with a low signal, σ_L . Hence, high status could be used by the unskilled agent to believe that she is diligent, which, provided that she works under the pay for performance incentives, leads to utility gains and high effort provision. Furthermore, this proposition also shows that high types receiving different status signals exert similar effort levels. Hence, skilled workers are aware of their capabilities and do not incorporate the status signals in their belief system. To conclude, the effort levels exerted by high types and that proportion of low types with a medal are comparable.

3 Experimental Design and Procedures

Experiment 1

The dataset of this experiment consists of 8 sessions, conducted at CenterLab in Tilburg University. All 136 subjects that took part in the experiment were students at the university. On average each session lasted one hour, between 13 and 24 subjects took part in each session, and no subject participated more than once in the experiment. I used z-Tree (Fischbacher, 2007) to implement the experiment. Subjects earned on average 11.55 Euros.

The experiment aims to evaluate the effect of status on a participant's cognitive performance. Status is induced in the experiment with the assignment of subjects to one of two conditions: the high status condition or *Medal*, in which subjects were given a medal, and the low status condition or *No Medal*. This artificial status differential is taken from Eckel

and Ball (1996) and Ball and Eckel (1998).¹

The focus on cognitive performance corresponds to the difficulty associated with changes in performance outcomes for cognitively challenging tasks. This property allows me to consider the results of this research as a lower bound of the effect of status on performance. Cognitive performance was measured with the Advanced Progressive Ravens Matrices test (APM) and the Standard Progressive Ravens test (SPM). The APM and SPM are non-verbal tests designed to evaluate the reasoning ability of adults and adolescents (Raven, 1989). The difference between the APM and the SPM is that the former evaluates subjects with above-average intelligence. Typically, IQ tests incorporate these matrices to measure the fluid component of intelligence, which is the ability that the respondent has to solve novel problems.

The APM consists of two parts: Set I and Set II, each of them used in one of the two stages of the experiment. It was common knowledge for the subjects that the experiment consisted of two stages. In the first stage of the experiment they had five minutes, as recommended by Raven (1989), to complete the 12 matrices contained in Set I. Even though performance in this part of the experiment would not pay out any monetary incentives, the participants were endorsed by the experimenter to perform at their best ability. Finally, private feedback about individual performance was provided once the pre-specified time to complete the task was over.

After completion of the first part of the experiment, the participants were allocated to one of the two status classes. This allocation was done at random, but subjects were not informed about this assignment rule nor were deceived in any way. More information about the details of this assignment can be found in the instructions of the experiment which can be found in Appendix 1. Subsequently, those assigned to the Medal condition were asked to go to the front of the laboratory room where the experimenter handed the medal and where they received an applause from the rest of the subjects.

In the second stage of the experiment, the participants had 20 minutes to complete Set II of the APM, which consisted of a sequence of 36 matrices, and the most difficult sets of 12 matrices of the SPM, namely set D and E.² This pre-specified time to complete these matrices was divided in 5 rounds. At the beginning of each round the subjects were asked to state a production target for that round. These targets were not incentivized to avoid hedging against poor performance in the task, but the experimenter endorsed the provision of accurate targets. Once a round was over, private feedback about individual performance was provided.

¹This artificial status differential diminishes the possibility of disagreements about standings that could arise if a naturally occurring status difference such as gender, race or academic performance was used.

²The 20 minute timed version of the ravens matrices test is an adequate predictor of the untimed version as Hamel and Schmittmann (2006) show.

The earnings of each subject in the experiment were calculated by multiplying each subject's performance in Set II by an exchange rate. The exchange rate was determined by the roll of a die at the end of the experiment. The participants faced with the same probability an exchange rate of 25 Euro Cents, 50 Euro Cents or 75 Euro Cents per correctly solved matrix. These incentives were used to avoid excessive arousal on demanding cognitive tasks (Ariely et al., 2009).

Experiment 2

The dataset for this experiment consists of 8 experimental sessions conducted at CenterLab in Tilburg University. All 138 subjects were students at the university. On average each session lasted approximately one hour and between 11 and 23 subjects took part in each session, and no subject participated more than once in the experiment. z-Tree (Fischbacher, 2007) was used to implement the experiment. Subjects earned on average 11.8 Euros.

The design of this experiment was similar to that of experiment 1, with only one difference, which was that the assignment to the conditions was determined by performance in Set I. Subjects with higher performance outcomes in Set I than at least half of the subjects in the same session received a medal, and the other half of the subjects in that session were assigned to No Medal.

4 Predictions

The model proposed in Section 2 provides two competing predictions regarding the subjects' performance in the experiment. The first prediction is based on the benchmark scenario.

Prediction 1 *Performance is highest for high type agents and lowest for low type agents. The assignment to status does not alter performance.*

The first order condition in (2) displays that the high types exert higher effort as compared to the low types. Given the complementarity between effort and abilities assumed by the production function, the higher effort provision by skilled types is translated into higher performance as compared to that associated to the low types .

The second prediction is based on the game of self-deception.

Prediction 2: *Performance is highest for high types, second highest for low types in the high status, and lowest for low types in the low status.*

Proposition 1 presents an equilibrium in which high types and those belonging to the high status exert higher effort as compared to subjects with low skills and assigned to the low status. Again, given the abilities-effort complementarity contained in the production function, high ability subjects exhibit the highest levels of performance, low types in the high status exert similar effort but exhibit lower performance and low types in the low status exert the lowest performance levels.

5 Results

Experiment 1

I begin this section by providing a description of the binary classification of subjects employed throughout the paper. According to Raven (1989) the sequence of matrices contained in Set I of the APM covers the full range of difficulty sampled in the SPM. In light of this property, I use the performance outcomes in this part of the experiment to classify the participants into two types. A participant is defined as a high type or θ_H if she completes accurately more matrices in Set I than at least half of the subjects in the same session. Moreover, an individual that fails to classify as a high type is labeled to be a low type or θ_L . The participants are not aware of this classification during the experiment.

This taxonomy comprises significant differences in cognitive abilities between types. The difference in performance between high types and low types is of 2.21 standard deviations for Set I ($p < 0.001$). In other words, subjects classified as high types completed correctly 26% more matrices in Set I than those subjects classified as low types.

Moreover, the data suggest that the status class allocation was done at random. There is no empirical evidence of a difference in average performance in Set I between low types with a medal and those without a medal ($t(62) = 0.159$, $p = 0.83$). Similarly, high types exhibited no difference in performance between conditions ($t(67) = 1.831$, $p = 0.071$).¹ Given that the assignment to the conditions was random and that the type classification yields significant differences in cognitive performance, a difference in performance in the second part of the experiment for subjects with similar cognitive abilities but assigned to different conditions is solely driven by the status class assignment.

The main finding reported in this paper is that low types that received a medal outperformed low types that did not receive one on 26% matrices in the second stage of the experiment ($t(55.89) = -2.241$, $p = 0.029$). The effect size of this difference is $g_s = 0.536$, and its significance does not stem from the assumption that the underlying distribution of

¹ Although, the latter t-test could be interpreted as weakly significant, a possible difference between these two groups poses no threat to the validity of the main result of the paper.

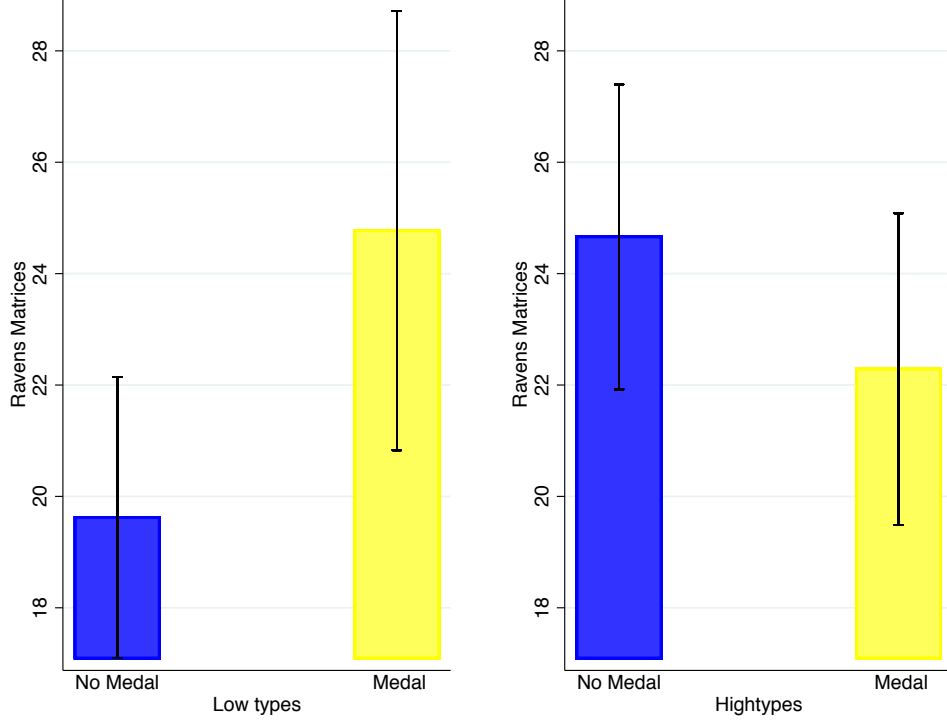


Figure 2: Average performance in the second stage of the experiment by types and condition.

this difference is normal ($p = 0.01$, with 1000 bootstrap replications).² Furthermore, there is no difference in subsequent performance between high types with a medal and high types without a medal ($t(64.31)=1.234$, $p=0.22$).

Hence, the effect of assigning low types to the high status class, provided that the randomization was succesful, is a significant subsequent performance improvement in the cognitively challenging task. Such improvement is large enough to even out the performance outcomes between types, since low types with a medal exhibit similar performance levels as high type subjects with a medal ($t(58.05)=-1.048$, $p=0.298$). In other words, low types performed as well as high types when they were given a medal. These results support the model of self-deception in which low ability agents that hold high status attain higher levels of performance as compared to their counterparts in the low status class.

I perform a regression analysis with the aim to control for possible disparities in abilities across conditions or sessions. Table 2 presents the estimates of a count data regression of performance in the secong stage on subjects type, condition dummies, and additional covariates. The results of the regression confirm the previous findings. First, low types with a medal outperformed low types without a medal by 34.6 % correctly solved tables

²The statistical power of this test is $1 - \beta=0.73$ at the 5 percent confidence level.

Table 1: Descriptive statistics of performance in the second stage per experimental condition and type

Type Condition	Medal	No Medal	Total
θ_H	22.285 (7.215)	24.658 (8.676)	23.695 (8.144)
θ_L	24.771 (11.476)	19.621 (6.630)	22.437 (9.863)
Total	23.68 (9.744)	22.65 (8.224)	23.139 (8.952)

Note: This table presents the averages and standard deviations of the performance in the second stage of the experiment by experimental condition, and subject type. Standard deviations are presented in parentheses.

in the second stage ($\chi^2(1)= 7.69$, $p=0.005$).³ Also, there is no evidence of a difference in performance between high types with or without a medal ($p=0.667$). Finally, once abilities on the task are controlled for, low types with a medal outperform high types with a medal by 27% correctly solved tables in the second stage ($\chi^2(1)=4.36$, $p=0.036$).

Bearing these findings in mind, it is possible to conclude that a manager can implement status to improve the performance outcomes of those workers that lie in the lower part of the abilities distribution. However, one may expect this effect not to be uniform across all the subjects. To investigate the nature and existence of heterogeneous effects of the status assignment, I momentarily abandon the binary classification of types and use score of Set I as an, arguably, continuum measure of abilities on the task. I perform a count regression of performance in the second stage of the experiment on performance in Set I, assignment to the high status class and an interaction between these two variables. Table 3 presents the estimates of the regression.

The estimates show that higher performance in Set I leads to higher performance in the second stage of the experiment for those subjects that did not receive a medal. Particularly, an additional correctly solved matrix in Set I leads to an increment in performance of 1.32 matrices in the second stage of the experiment, *ceteris paribus*. Moreover, the coefficients associated to the dummy “medal” and its interaction with performance in Set I show that the positive effect of the high status class on subsequent performance is stronger among those with lower cognitive abilities as measured by Set I. For the average participant with a medal, an additional correctly solved matrix in Set I, leads to a decrease of 2.6 correctly solved matrices on the second stage of the experiment, *ceteris paribus*.

The conclusion of this heterogenous effects analysis is that subjects with lower performance outcomes in Set I exhibit larger performance improvements when they are given the

³These calculations are based on the coefficients presented in Table 1. I use the coefficients of the variables “Medal* θ_H ” and “Medal” of model (3), transform each of them with the exponential function and take the difference of these numbers to yield $\exp(0.231) - \exp(-0.100) = 1.25 - 0.904 = 0.346$.

Table 2: Treatment Effects

	(1)	(2)	(3)
	Performance	Performance	Performance
θ_L *Medal	0.334** (0.128)	0.337*** (0.074)	0.231** (0.075)
θ_L	-0.229** (0.082)	-0.227*** (0.053)	-0.100 (0.054)
Medal	-0.101 (0.081)	-0.103* (0.051)	-0.014 (0.052)
Session nr.		-0.001 (0.006)	0.008 (0.006)
Session Size		-0.003 (0.010)	-0.014 (0.010)
Mistake 1st table			-0.071*** (0.008)
Solved tasks 1st round			0.085*** (0.007)
Constant	3.205*** (0.054)	3.265*** (0.149)	2.334*** (0.177)
N	133	133	133
pseudo R^2	0.023	0.024	0.180

Note: This table presents the estimates of the Poisson regression of the model $Performance_i = \beta_0 + \beta_1 \theta_L * Medal + \beta_2 \theta_L + \beta_3 Medal + Controls' \Gamma + \epsilon_i$, with $\epsilon \sim poisson(\lambda)$. "Performance" is the number of correctly solved matrices in the second stage of the experiment, "Medal" is a dummy variable that captures whether the subject was assigned to the high status, and " θ_L " is a dummy variable that captures whether the subject was classified as having low cognitive abilities. The controls considered in this model are "Session nr." a variable that captures the session order of the experiment, "Session Size" which captures the number of subjects in the session, "Mistake 1st Table" a variable that captures the number of mistakes in the first round, and "Solved tasks 1st round" captures the number of answers in the first round. Robust standard errors presented in parentheses. *** denotes significance at the 0.001 level, ** denotes significance at the 0.01 level, * denotes significance at the 0.05 level.

Table 3: Heterogenous Treatment Effects

	(1)	(2)	(3)
	Performance	Performance	Performance
Score Set I	0.0960*** (3.41)	0.0957*** (4.98)	0.0593** (3.08)
Medal	1.351** (3.22)	1.362*** (5.62)	1.171*** (3.44)
Score Set I * Medal	-0.144** (-3.21)	-0.145*** (-5.46)	-0.120*** (-3.36)
Session nr.		-0.000992 (-0.18)	0.000383 (0.06)
Session Size		-0.00468 (-0.50)	-0.00634 (-0.52)
Mistake 1st table			-0.0720*** (-6.89)
image1			0.0850*** (10.89)
Solved tasks 1st round	2.229*** (8.50)	2.316*** (10.03)	1.718*** (6.08)
Observations	136	136	136
pseudo R^2	0.031	0.031	0.182

Note: This table presents the estimates of the Poisson regression of the model $Performance_i = \beta_0 + \beta_1 \theta_L * Medal + \beta_2 \theta_L + \beta_3 Medal + Controls' \Gamma + \epsilon_i$, with $\epsilon \sim poisson(\lambda)$. "Performance" is the number of correctly solved matrices in the second stage of the experiment, "Set I" is the number of correctly solved matrices in the first stage of the experiment, " θ_L " is a dummy variable that captures whether the subject was classified as having low cognitive abilities. The controls considered in this model are "Session nr." a variable that captures the session order of the experiment, "Session Size" which captures the number of subjects in the session, "Mistake 1st Table" a variable that captures the number of mistakes in the first round, and "Solved tasks 1st round" captures the number of answers in the first round. Robust standard errors presented in parentheses. *** denotes significance at the 0.001 level, ** denotes significance at the 0.01 level, * denotes significance at the 0.05 level.

high status class as compared to more skilled subjects. Hence, a manager implementing a status assignment in which high status is provided randomly, can expect that those workers with lower abilities in the productive task will experience higher performance improvements from receiving the high status.

A natural question arising from the results presented in this subsection is whether the provision of medals is in fact the driver of the boost in performance exhibited by the lowest performers, or whether this is due to other confounding factors such as the difference in extrinsic incentives between the second stage and the first stage of the experiment that motivated some of the low types. If the high status class is indeed leading these effects, restricting the provision of medals to high ability subjects must lead to an underperformance of low types in the stage two. With the aim to investigate this conjecture I perform a second experiment which is presented in the next subsection.

Experiment 2

The second experiment aims to evaluate cognitive performance when high status is given exclusively to the high types. The goal of this experiment is to show that this meritocratic environment would lead to a difference in subsequent performance between types that originates from the initial disparity in cognitive abilities. Such result would support the main finding of the paper: the boost in performance exhibited by low types in Experiment 1 is achieved solely through the provision of high status to these subjects.

As in the previous subsection, I show that the binary types classification entails large differences in cognitive performance between high and low types. The difference in average performance between low types and high types in the first stage of the experiment is 2.31 standard deviations ($p < 0.001$), with high types solving correctly 29% more matrices than low types.

Furthermore, the data suggest that in the second stage of the experiment, high types outperformed low types by 13% correctly solved matrices in the second stage of the experiment ($t(130.32) = -2.371$, $p = 0.019$). This difference in performance is of the magnitude of 0.407 standard deviations ($g_s = .407$, $p = 0.015$ with 1000 bootstrap replications). Hence, in a meritocratic environment, low types exhibit lower performance with respect to high types. This result could be seen as a proof of concept illustrating that low types underperform high types on the second stage of the experiment, unless they are provided with the high status class.

The two experiments presented in this paper show that subjects with low cognitive abilities experience a boost in subsequent performance when they are assigned to the high status class. In the next subsection, I show that a principal obtains similar performance

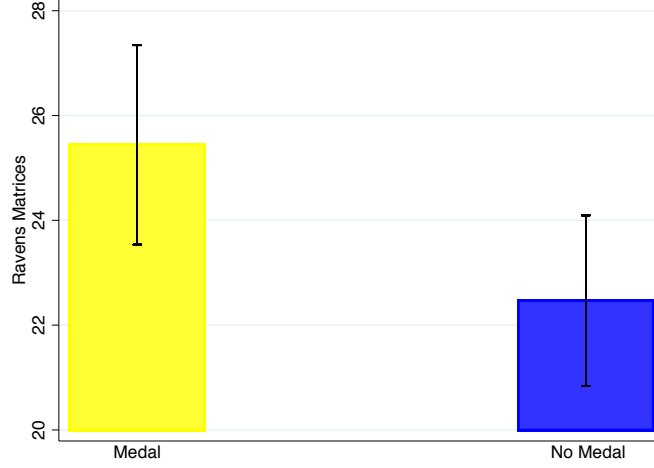


Figure 3: Average performance in the second stage of Experiment 2 by types and condition

levels in the second stage of the experiment under the two status allocations, meritocratic or random assignment. Hence, his preferences for income distribution determine the status allocation choice.

Experiment comparison

A comparison between the performance outcomes from the second stage of Experiment 1 and Experiment 2 is presented. Figure 4 shows that there is no difference in performance outcomes between Experiment 1 and Experiment 2 ($t(264.6)=0.580$, $p=0.562$). This, along with the results of the previous subsections, implies that the improvement displayed by low types when they are given a medal, by construction in the random status allocation, comes at no performance loss or gain for the principal. Hence, in a situation in which he is able to choose the mechanism of status allocation, he would do so on the basis of his preferences for income distribution. Specifically, a principal with strong preferences for income equality among the workers, would prefer the random status assignment as it allows a proportion of the low types to bear earnings comparable to those accomplished by the high types.

Furthermore, in the spirit of a robustness check, I evaluate the consistency of some of the most relevant findings of the paper across experiments. First, I find that low types with a medal, by construction belonging to Experiment 1, exhibit 10% higher subsequent performance than low types in Experiment 2 ($t(104)=-1.29$, $p=0.09$). Thus, the main result of the paper holds across experiments. Additionally, high types in Experiment 2 and low types with a medal exhibit no significant difference in performance in the second stage of the experiment ($t(50.81)=0.309$, $p=0.758$). This is consistent with the finding that the performance exhibited by low types assigned to Medal is high enough to allow them to

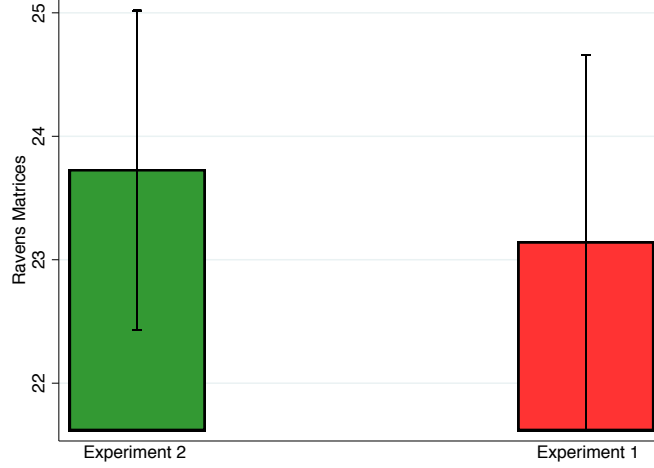


Figure 4: Average performance in the second stage by experiment

attain performance levels similar to those reached by high types. Finally, high types in Experiment 2 outperform low types without a medal in Experiment 1 ($t(61.96) = 3.738$, $p < 0.001$), which confirms the result of Experiment 2; the meritocratic provision of medals maintains the differences in cognitive abilities between types in the second stage of the experiment.

6 Beliefs about performance

In this section, I provide evidence that among the high types, those with high status exhibit higher beliefs about personal performance. This finding supports the self-deception model, since it demonstrates that individuals that have certain level of skills in a task and exposed to constant feedback throughout the experiment, incorporate the status class in their belief system.

In the experiment a goal or production target is elicited at the beginning of each experimental round. This goal represents the subject's beliefs about her or his future performance in that round. Moreover given the pay-for-performance incentive scheme, a goal can also be interpreted as the subject's expectations about her future earnings or, in the light of the model, anticipatory utility, $E_1(b(e, \theta_i))$. Hence, significant differences in goal setting between agents with similar initial cognitive skills but assigned to different conditions, suggest that status affects the subject's expectations about future earnings, and in turn her anticipatory utility.

I start by analyzing the aggregated goal level, which is the sum of the elicited goals over the five rounds of the second stage. Table 4 presents the descriptive statistics of this variable. I find that low types without a medal set on average 15% lower goals than high

Table 4: Descriptive statistics of aggregated goal in the second stage per experimental condition and type

Type	Condition	Medal	No Medal	Total
θ_H		31.285 (8.944)	31.804 (8.721)	31.594 (8.793)
θ_L		29.8 (8.442)	27.620 (9.484)	28.81 (10.458)
Total		32.161 (9.240)	29.559 (9.113)	31.691 (9.249)

Note: This table presents the averages and standard deviations of aggregated goal in the second stage of the experiment by experimental condition, and subject type. Standard deviations are presented in parentheses.

types without a medal ($t(54.29)=1.749$, $p=0.043$). Besides, low types assigned to the medal exhibit similar aggregated goal levels as those elicited by the high types without a medal ($t(57.15)=0.68$, $p=0.49$). Thus, the high status lead low type subjects to set goal levels that are as high as those set by the high types.

Based on the theoretical framework, this difference in goal setting caused by the status assignment cannot be explained by the benchmark scenario, where subjects know their abilities on the task and thus their belief system is not altered by the status signal. However, the self-deception scenario accounts for this difference. In such an environment, individuals use status to believe that they are better performers than they are. This goal setting difference between low types provides evidence that i) these subjects believe that they are better than they are when given the high status and ii) if individuals incorporate an anticipatory utility component in their preferences, these higher beliefs lead to utility gains.

I proceed to study the goal level elicited in each round with the aim of understanding the dynamics of aggregated goals. I am particularly interested in investigating whether the difference in aggregated goal setting between low types in the high status class and low types in the low class appears in the first round. Such a finding would indicate that the assignment to the status class has an immediate effect on a subject's beliefs about her performance. Table 5 shows that there are no differences in the initial goal level between low types with a medal and low types without a medal ($t(60.829)=-0.861$, $p=0.392$). I conjecture, that this result stems from the uncertainty faced by subjects with regard to their abilities, e.g. not being able to predict how well they will perform in the task as they have been performing it for a relatively short time, and the difficulty of the task in the second stage of the experiment.

Although the differences in beliefs about performance do not appear immediately, Table 5 also shows that there are goal setting differences between conditions for low types in round 3 ($t(52.046)=-1.819$, $p=0.03$), round 4 ($t(59.678)=-1.239$, $p=0.110$) and round 5 ($t(61.499)=-1.621$, $p=0.055$), with those assigned to Medal setting higher goals than their

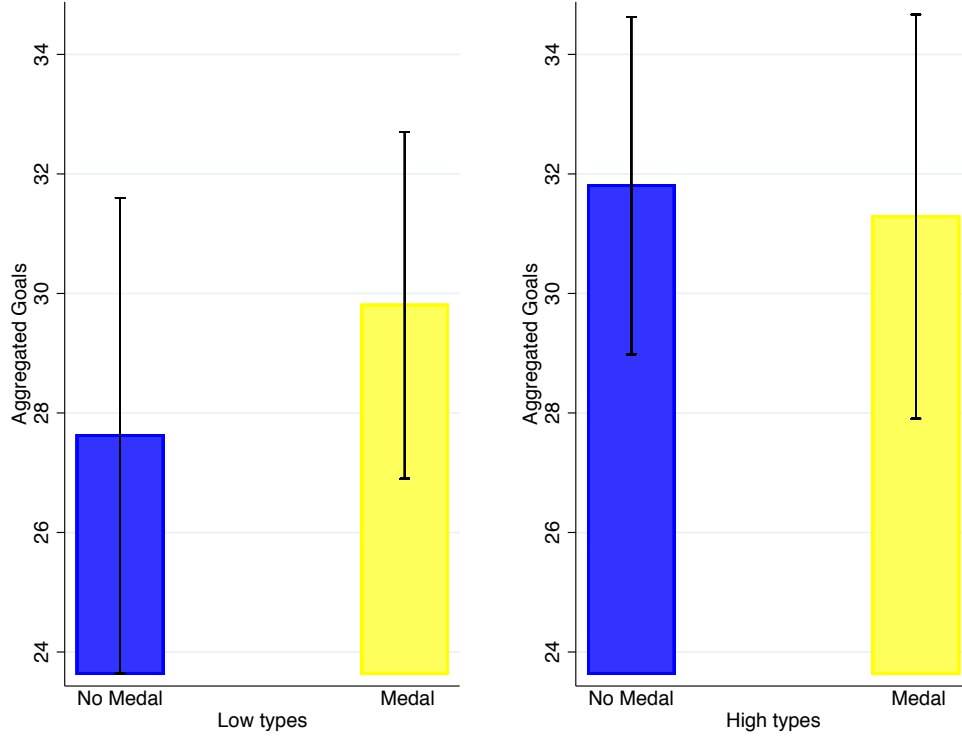


Figure 5: Average aggregated goal in the second stage of the experiment by types and condition.

Table 5: Goal level by round and by condition for the low types

Type	θ_L	θ_L	θ_H	θ_H
Condition	Medal	No Medal	Medal	No Medal
Goal _{r=1}	7.228 (2.880)	8.103 (4.369)	7.804 (4.539)	8.428 (4.590)
Goal _{r=2}	8.542 (2.582)	8 (2.449)	8.464 (1.971)	9.463 (2.079)
Goal _{r=3}	6.285 (1.824)	5.310 (2.361)	6.560 (2.549)	6.785 (2.079)
Goal _{r=4}	4.371 (2.073)	3.724 (2.085)	4.464 (1.815)	4.634 (2.130)
Goal _{r=5}	3.3714 (2.498)	2.482 (1.882)	3.142 (1.603)	3.341 (2.220)
Goal_r	5.96 (3.029)	5.524 (3.549)	6.257 (.285)	6.345 (.259)

Note: This table presents the averages and standard deviations of goals in the second stage of the experiment by experimental condition and round for those subjects classified as low types. Standard deviations are presented in parentheses.

Table 6: Goal dynamics for the low types

	(1)	(2)	(3)
Sample	θ_L	$\theta_L^* \text{Medal}=1$	$\theta_L^* \text{Medal}=0$
	Goal _r	Goal _r	Goal _r
Goal _{r-1}	0.426** (2.74)	0.559** (3.09)	0.295 (1.51)
Performance _{r-1}	0.461* (2.49)	0.461*** (3.55)	0.471* (2.01)
Session nr.	0.465 (0.44)	-0.562 (-0.47)	0.309 (0.40)
SessionSize	1.079 (0.89)	-1.587 (-0.37)	0.476 (0.54)
Matrices $r = 1$	-1.242 (-0.96)	0.944 (0.30)	-0.317 (-0.67)
Constant	-4.610 (-0.19)	16.28 (0.35)	-4.629 (-0.31)
Observations	256	140	116

Note: This table presents the estimates of the Blundell and Bond regression of the model $Goal_{r,i} = \alpha_0 + \alpha_1 Goal_{(r-1),i} + \alpha_2 Performance_{(r-1),i} + Controls' \Gamma + \epsilon_i$. "Goal" is a subject's beliefs about the number of correctly solved matrices in round r . "Performance" is the number of correctly solved matrices in a round in the second stage of the experiment. The controls considered in this model are "Session nr." a variable that captures the session order of the experiment, "Session Size" which captures the number of subjects in the session, "Mistake 1st Table" a variable that captures the number of mistakes in the first round and "Solved tasks 1st round" which captures the number of answers in the first round. t-test with clustered standard errors presented in parentheses. *** denotes significance at the 0.001 level, ** denotes significance at the 0.01 level, * denotes significance at the 0.05 level.

counterparts in No Medal. Hence, the difference in aggregated goals between conditions is caused by differences in goal setting in the last rounds of the experiment. This result suggests that there is a relevant role of status assignment on feedback assessment and task experience, which in turn affects goal setting in the last rounds. Specifically, one can hypothesize that subjects in the high status condition assimilate performance feedback more optimistically and hence set higher and more difficult goals.

To investigate how the goal levels are affected by performance feedback and task experience, I perform a Blundell and Bond dynamic panel data regression of a round's goal on its lagged variable, assignment to the Medal condition, lagged performance and covariates that capture abilities on the task. The advantage of the Blundell and Bond technique compared to an ordinary least squares regression is that it allows the error term and the unobservable individual characteristics to be correlated which is to be expected in this statistical model given the limited demographic information in the dataset. Table 6 presents the estimation output of the regression.

The estimates show two relevant patterns: first, low types in both conditions adjust goals upwards by a similar amount in reaction to performance in the previous round ($\chi^2(1)=2.86$, $p=0.377$). Status did not affect the way in which subjects assessed performance feedback and incorporated this information into their beliefs. Second, only subjects with a medal

exhibit goal state dependence. In other words, low types in the high status adjust goals upwards in reaction to the previous-round goal level, whereas their counterparts in the low status class do not exhibit such behavior. Thus, high status, irrespective of performance through the experiment, leads participants to exhibit steeper goal trends over the rounds.

The results are suggestive of a difference in goal setting strategy between conditions. Low ability subjects assigned to the high status class set, in each round, higher goals as compared to their previous-round' goals. This can be seen as these subjects challenging themselves to achieve a higher target as compared to the one set in the previous round. Whereas low types assigned to the low status class not exhibit such upward trend in goal setting. Hence, the higher aggregated goal levels of subjects in the high status, originate from their challenging-seeking behavior in each round.

This difference in goal setting strategies induced by the status assignment, could also explain the performance difference presented in the previous section. In the light of the goal setting theory, a challenging goal boosts performance in physical and cognitive tasks (Wu et al., 2008). Hence, even though both groups hold the same abilities on the task as measured by performance outcomes in Set I, only those holding the high status set challenging goals, or goals that surpassed the previous-goal level, which lead to higher performance.

As a conclusion it is possible to state that the assignment to the high status class affected the the low types' beliefs about their future performance. These participants exhibited production targets that were as high as those elicited by the high types. Thus, they believed, in spite of having relevant information about their abilities, that they were not bad performers. Hence, as in the self-deception scenario, the high status signal was internalized by these subjects as part of their predictions about their performance. Furthermore, these higher production targets stemmed from their higher challenge-seeking behavior in each round.

7 Conclusion

I studied the effect of an incentive device incorporating status on the workers' performance. Special attention was devoted to the effect of this device on agents with high or low abilities on the productive task. A random allocation of the high status inherent to the incentive scheme allowed me to perform such analysis. The theoretical framework shows that, under certain conditions over her preferences, the representative agent engages in a game of self-deception wherein favorable status signal realizations are used to believe that she is skilled even when she is not. The equilibrium of this self-deception game describes that agents that engage in a positive degree of self-deception also exhibit high performance levels.

The predictions of the model are tested in a controlled laboratory setting. The data

suggest that agents classified as low types exhibit higher performance outcomes when they are assigned to the high status condition. Further analysis shows that these agents also incorporate an eventual assignment to the high status condition in their belief system; when allocated to the high status, they believe that they are good performers, even when constant feedback about their performance is given. Moreover, high ability subjects exhibit high performance and high performance beliefs irrespective of their status class. These results support the self-deception scenario in which distort relevant information whenever it is convenient.

My findings have clear management implications: First, managers can target the low skilled employees and benefit from a boost in their performance outcomes by implementing a status incentive device in which they are given a high status class. Second, a random assignment of the high status class induces more equal performance outcomes across the workforce. Third, the managers are indifferent between this random status allocation and a meritocratic status allocation when their choice is based on average performance comparisons between these two systems.

A natural question is whether the implementation of the status allocations is feasible in an organisation. According to the data, the main advantage of the provision of medals to low ability subjects is that they exhibit an improvement in performance. However, to maintain this effect, high status must be desirable, requiring a meritocratic mechanism attached to their assignment. A possible approach to solve this paradox is the method used by Neckermann et al. (2014), who allocated status awards on the basis of a variable that was uncorrelated to the performance outcome but that benefited low ability workers. A manager using such a method is able to motivate low ability workers and maintain the desirability of the award.

Although I focused on an agency setting, the findings contained in this research should not only be interpreted only through such lens. This study could also lean support to the literature focusing on social disadvantage and performance. As in Hoff and Pandey (2006), this paper shows that making salient the membership of a low status class leads to low performance and lower beliefs about one's capacities. However, the framework considered here uses a short-lived artificial status differential and a cognitively challenging task, thus, the results exposed in this study can be interpreted as a more stringent test for the effect of social status salience on performance outcomes.

My findings can be linked to the recent literature that investigates the effects of scarcity on cognitive performance. As in ?, I show that the prominence of scarce resources, in this paper making salient that the subject has scarce cognitive resources to execute a task, leads to lower average performance in the Raven's matrices test. Thus, this study can be seen as a proof of principle that making prominent one's lack of abilities to execute a task dampens

cognitive performance.

Future research should focus on repeated environments that allow status re-assignments. The proposed approach could shed light on whether the performance improvements displayed by the low ability participants in this paper hold in subsequent meritocratic environments. Such hypothetical result would enhance the importance of the present research, as disadvantaged managers could benefit from the improvement of low skilled workers in a one shot and cost-efficient policy.

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Experimental Instructions

Part 1 of the Experiment

This is an experiment in the economics of decision-making. The instructions are simple and if you follow them carefully and make good decisions, you might earn a considerable amount of money, which will be paid to you via bank transfer at the end of the experiment. The amount of payment that you receive depends entirely on your decisions and your effort.

Once the experiment has started, no one is allowed to talk to anybody other than the experimenter. Anyone who violates this rule will lose his or her right to participate in this experiment. If you have further questions when reading these instructions please do not hesitate to raise your hand and formulate the question to the experimenter.

In the first part of the experiment we will ask you to solve a set of 12 tasks, in each of the tasks you are asked to complete a pattern, to do so, you need to choose among some of the options that we provide. Remember that only one of the options is correct. In this part of the experiment you have 4 minutes in order to complete the set of 12 tasks. With the completion of this task we will place you in one of two groups.

At the beginning of this part of the experiment we will ask you to provide a personal goal or target, this is we would like you to estimate how many patterns you would be able to solve in that round. Please provide this goal at your best ability! We would really like to know how accurate your estimates are.

(Completion set I, approximately 6 minutes)

The following people have a position in the GOLD group. (Call out ID numbers). Please come up as we call your name and receive your medal. You will wear your medal for the rest of the exercise. Please remain standing at the front of the room until all stars are distributed. Let's give the Gold group a round of applause!

Part 2 of the Experiment

In the second part of the experiment you are asked to solve patterns just like the ones that you completed in the first part of this experiment. You need to solve as many patterns as you can, since for each correctly solved pattern you would receive a certain amount of points, which can be exchanged for money at the end of the experiment. Hence the money that you earn in the exercise depends on your performance in this part of the experiment.

During this part of the experiment you have 5 rounds, each of 4 minutes, to complete as many patterns as you can. Feedback about your own performance, this is whether you solved correctly a pattern or not, would be given to you as soon as you solved that pattern. A summary of the number of correctly solved and incorrectly solved patterns in the round would be given to you as soon as the round ends.

Your final score, this is the amount of points derived from each round, would only be shown to you at the end of the experiment. The exchange rate at which the points can be exchanged for money would be determined by the roll of a dice done by the experimenter at the moment of payment. Numbers (1,2) of the dice would imply an exchange rate of 25

Euro cents per point, numbers (3,4) would imply an exchange rate of 5 per Euro cents per point and numbers (5,6) would imply an exchange rate of 75 Euro cents per point.

At the beginning of each round we will ask you to provide a personal goal or target, this is we would like you to estimate how many patterns you would be able to solve in that round. Please provide this goal at your best ability! we would really like to know how accurate are your estimates.

(Completion set II, approximately 25 minutes)